

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

The allowance of claims 10 and 11 and the indication of allowable subject matter at claims 14, 17, 18, 21, 22, 36, 37 and 40 are appreciatively noted.

In response to the formality-based claim objections, claims 17 and 23 have been amended as suggested by the Examiner. However, the Examiner's suggested amendment for claim 12 would render the claim non-grammatically correct. Furthermore, requiring each port of the connecting unit to be "adapted for coupling..." is a definite limitation and requirement that is commonly used in United States claim language and is fully compliant with 35 U.S.C. §112.

The rejection of claims 12-13, 15-16, 19-20, 23-35 and 38-39 under 35 U.S.C. §102 as allegedly anticipated by Gupta '391 is respectfully traversed.

As is set out in considerable length in the specification and in prior submissions, this invention broadly concerns a three port connector for data packets and automatically configures the data path *if there is no active unit connected to any one of the ports*. The connector may therefore be employed to couple a cascade unit to units above and below it in a stack, to terminate either end of a stack or to bypass *a unit* which is not active or operational. The connector performs this automatic configuration in response to control

messages which are separate from the data packets. In particular the control messages may carry automatic stack numbering information but principally the multiplexers which control the data path (e.g. the multiplexers 54 in Figure 9) are controlled by the control messages externally received by way of the control path (e.g. Control IN and control OUT in Figure 9).

Gupta describes a 'connector' for interfacing between end user stations. The connector has three ports, ports A, B and C (100, 102, 104, Figure 2). Normally, if the ICU is functioning correctly, data received at a port can be directed by means of the controller 108 through either of the other two ports. This normal operation is suspended *if the processor fails or has to be reprogrammed*. In such events, the bypass circuit 112 is operated to connect port 102 directly to port 104.

It should be noted that such bypass is made only in response to an interruption of the internal working of the ICU. No account is made of the condition or status of the units to which the port may or may not be connected. There is no means provided or envisaged for controlling the bypass in accordance with control messages that are (or should be) received at the ports.

In particular, Examiner's statement that the multiplexers (which Gupta does not explicitly disclose) 'provide a bypass of a port to which an active communication unit is not connected' is (with respect) erroneous. Gupta's bypass unit is not so operated in

response any way to the condition of any of the end stations to which it may be connected.

Claim 12 has been amended to put this issue beyond any doubt. In particular claim 12 states (inter alia) that the multiplexers which provide a data path for packets from each of the said ports to either of the others and are responsive to point-to-point control messages separate from said data packets **and received from any network communication units coupled to said ports** to provide for bypassing of a port to which an active communication unit is not coupled. Gupta discloses no such control messages not any control of the bypass in response to such messages.

Claim 13 requires *inter alia* that

“each port has control lines *separate from said data path* for transmitting and receiving said point-to-point control messages *so as to determine the status* of a communication unit to which the respective port is connected, the multiplexers being controlled by *control logic responsive to said control messages*”.

The Examiner states:

“Gupta further discloses ‘wherein each port transmits and receives control messages so as to determine the status of a communication unit to which a respective pod (sic) is connected, the multiplexers being controlled by control logic responsive to the control messages’”.

The Examiner relies on the passage between column 6 line 12 and column 8 line 17 and Figure 7. It is noted in Figure 7 that the multiplexers are controlled by controller

108. This controller operates in two events; if the ICU is being programmed and if the ICU fails. The Examiner has completely failed to point out where the controller or any other device within the ICU transmits and receives control message separate from the data packets from the ports or in any way *determines the status of a communication unit to which the connector is connected*. The controller 108 is not coupled in any way to the ports and plainly cannot respond to any control messages received at said ports, even if there were any such control messages in Gupta.

Claim 15 requires, *inter alia*:

“that each port of the connecting unit [has] first lines for forwarding and receiving data packets and second lines, separate from said first lines, for forwarding and receiving point-to-point control messages”

No such lines are disclosed by Gupta. Examiner suggests that Gupta depicted control lines (to/from PPC 106 lines) are separate from the data path. In Gupta the PPC is the internal programming processing circuit. It is not the ports. Claim 15 requires that the *ports* have the separate *lines for forwarding and receiving point-to-point control message*. The Examiner's contention is therefore mistaken.

Claim 15 also requires:

“control logic *under the control of said control messages*, the connecting unit providing a data path for packets from the first port to the third port and from the third port to the second and also from the second port to the first, the connecting

unit forwarding to the third port packets received at the first port when said control logic indicates that an active communication unit is coupled to the third port and bypassing the third port when *said control logic indicates that an active communication unit is not coupled to the third port*".

As noted above, there is no control logic which is in any way responsive to control messages as defined and no manner of controlling the bypass having regard in any way to the active or non active status of the external communication units

In respect of claim 16, the Examiner repeats the error noted above in connection with claim 15.

Claim 19 requires, in addition to features previously noted above in connection with claims 12 – 15,:

"a first external port, a second external port and a third external port *each* having first lines for forwarding and receiving data packets and second lines separate from said first lines for forwarding and receiving distinctive point-to-point control messages"

As noted above, Gupta fails to disclose or suggest such features. The Examiner even fails to consider these features in his analysis of the claim.

Claim 19 further requires:

“wherein each communication unit is coupled by way of its cascade port to a respective external port of a connecting unit, whereby to form a ring connection”

No such ring connection is disclosed by Gupta. The Examiner attempts to rely on Figure 5 for a disclosure of the data path. However, Figure 5 and the supporting text disclose only a branch, not a ring (i.e. a closed loop).

Claim 20 depends on claim 19 and further requires that:

“ the connecting units provide a data path for packets in each of two directions around the ring”

Figure 5 of Gupta shows a branch, not a ring, and the claim is therefore allowable for the same reasons as advanced in support of claim 19.

Claim 23 depends on claim 19 and is believed allowed for at least the reasons previously advanced in respect of that claim.

Claim 24 requires *inter alia* that:

“the interface provides for the storage of a respective identification number”

No such feature is shown in Gupta and the Examiner has not attempted to demonstrate that it is.

Claim 25 requires *inter alia* that:

“said interface is a modular unit *removable from the respective communication unit*”

No such feature is shown in Gupta and the Examiner has not reasonably attempted to demonstrate that it is.

Claim 26 requires *inter alia* that:

“for connecting a external port of a connecting unit to a an external port of another connecting unit there is provided a connecting cable *which co-operates with a signal state of said control messages to indicate which end of the cable is connected to a respective one of said first and second external ports*”.

The Examiner has not reasonably attempted to discuss the features of this claim. Although it is quite possible that the ICUs in Figure 5 of Gupta are connected by cables there is not the slightest suggestion that such a cable connecting cable co-operates with a signal state of said control messages to indicate which end of the cable is connected to a respective one of said first and second external ports.

Claim 27 requires, *inter alia*:

“three external ports consisting of a first, second and third port, *each* port of the connecting unit being adapted for forwarding and receiving data packets *and for separately forward and receiving point-to-point control messages*”

As noted above, Gupta discloses no such lines. The Examiner appears to confuse the PPC 106 with the ports.

Claim 27 further requires:

“control logic for *determining from said point-to-point control messages* for each port *a link status* and for controlling the multiplexers to bypass any one of said ports when the *respective link status* indicates that data packets are *not to be received from that port*”

Gupta does not (e.g., for the reasons noted above) discuss any such features. Examiner has not even reasonably attempted to address these feature in claim 27.

Claim 28 requires *inter alia*:

“one of said multiplexers for *each* port”

Even if one regards (as suggested by the Examiner that ‘bypass circuit’ is a multiplexer, this has quite fails to show the features of the claim. On the Examiners estimate there is only one multiplexer where claim 28 requires one of said multiplexers for each port.

Claim 28 further requires that:

“ each such multiplexer is controllable to direct to the respective port data packets from either one of the other two ports selectively and wherein the

multiplexers bypass a port by preventing supply of packets from that port to the other two respective ports”

The Examiner has failed to justify the rejection of this claim. It requires *three* multiplexers, one for each port and that *each* multiplexer bypasses a port by preventing supply of packets from that port to the other two respective ports. Indeed, the Examiner has not even considered these features in his stated grounds for rejection.

Claim 30 requires *inter alia* that:

“each [of the three ports] has lines for the transmission and on and reception of the control messages separately from the data packets”

No such feature is in Gupta, as discussed above.

Claim 31 further states:

“wherein the control logic determines that data packets are not to be received from a port when the control logic determines an absence of control messages received by that port”

The Examiner states that: ‘Gupta discusses the functions of controlling circuitry and bypassing circuitry at column 6 line 12 etc. ..., to include reroute data in the event of failure of the controller being reprogrammed.

However, the features of this claim are not shown in Gupta even on the Examiners analysis. The failure in Gupta is a failure of the connector, not of the end stations to which it is connected.

Claim 32 requires *inter alia* that:

“the control messages include a field for representing the link status as if it were false”

Gupta neither discloses such control messages nor their content nor any link status nor any field for the link status nor the forcing of the field to represent a false value.

Claim 33 requires *inter alia* that

“each port of the connecting unit being adapted for forwarding and receiving data packets *and for transmitting and receiving point-to-point control messages, separately from the data packets from the connecting unit*”

As discussed at length above, Gupta fails to show these features. The Examiner has not attempted to show their presence in Gupta.

Claim 33 further requires:

“control logic for determining for each port a link status depending on whether control messages are received by the port and for controlling the

multiplexers to bypass any one of said ports when the link status corresponds to the absence of reception of control messages at that port”

As discussed at length above Gupta fails to show this feature. Gupta’s ports do not receive such control messages; they do not determine any link status depending on whether such control messages are received.

The Examiner states:

‘Moreover, Gupta also shows control logic (106, 108 and 110) for controlling the unit to bypass the port in the event of port failure’.

This contention is doubly wrong. First, there is no discussion of port failure in Gupta; he is concerned (as the Examiner himself states in relation to claim 31) that there is bypass only for failure in the processor or for reprogramming. This is not port failure. Second, claim 33 is not concerned with port failure; it is concerned with the detection of the absence of control messages at the port. The Examiner’s rejection is without foundation.

Claim 34 requires *inter alia* that:

“there is one of said multiplexers *for each port*”

Gupta fails to disclose a multiplexer for each port. There are three ports. Gupta discloses, even on the Examiners showing, only two multiplexers 724 and 728. Further,

multiplexer 724 is disposed between the shift registers 712, 714 and the flip-flop 726 and does not govern the selection of a port for a packet.

Claim 34 also requires that:

“each such multiplexer is controllable to direct to the respective port data packets from either one of the other two ports selectively”

Plainly the only multiplexer in Gupta which selectively directs packets to a port is multiplexer 728; Thus the requirements of the claim are not met.

Claim 34 also requires that:

“the multiplexers bypass a port by preventing supply of packets from that port to the other two respective ports”.

Plainly, multiplexer 728 merely selects either port 102 or 104. It does not perform the requirements of the claim.

Claim 35 requires *inter alia* that:

“the control messages include a field for causing the control logic to treat the reception of control messages as the absence of control messages”

The Examiner cites Table 1 in column 7 of Gupta. However, this is a table of control bits from the internal microprocessor to the bypass circuit; it has nothing to do with control messages sent from or received by the three external ports.

Claim 38 requires, inter alia:

“three external ports consisting of a first, second and third port, *each* port of the connecting unit being adapted for *forwarding and receiving addressed data packets and for transmitting and receiving point-to-point control messages separately from the data packets from the connecting unit*”

As discussed at length above, Gupta shows no such features. These features are not even considered in the Examiner’s attempt to show anticipation by Gupta.

Claim 38 also requires:

“for each port, a *respective* multiplexer”

As noted in relation to claim 33, Gupta discloses only two multiplexers of which only one (728) relates to any port.

Claim 38 further requires that:

“[each multiplexer] is *controllable to direct to the respective port data packets from either one of the other two ports selectively*”

Gupta’s multiplexers 724 and 728 do not act in this manner.

Claim 38 further requires:

“control logic for determining *for each port a link status depending on whether control messages are received by the port* and for controlling the

multiplexers to bypass any one of said ports *when the link status corresponds to the absence of reception of control messages at that port*"

The Examiner fails to address these features but in any event it is plain, as discussed at length above, that Gupta does not even monitor the status of the links from the connector to the associated cascade units and does not monitor for the reception of control messages by the ports.

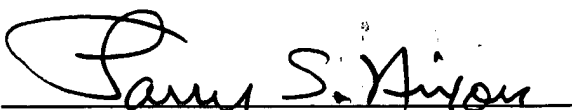
Claim 39 corresponds to claim 35 and is allowable for at least the same reasons.

For the foregoing reasons all the claims pending in this application are believed to be allowable over the cited art.

Accordingly, a formal Notice of Allowance is respectfully solicited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
Larry S. Nixon
Reg. No. 25,640

LSN:vc
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100